

AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. **(Currently Amended)** A transmitter for an optical network unit (ONU) for transmitting data over a return data channel of a passive optical network comprising a Optical Line Terminal (OLT) and a plurality of optical network units ~~in accordance with a predefined time-sharing protocol~~, the transmitter comprising:

a laser driver for driving a laser of the transmitter to generate an optical carrier;

a modulation sub-system for modulating data onto the optical carrier generated by the laser; and

a secondary modulation sub-system for impressing an ONU identifier onto the optical carrier, the ONU identifier being unique among the ONUs of the passive optical network and serving to identify the ONU to a network monitor that monitors the a return data channel of the passive optical network to detect a faulty ONU.
2. **(Previously Presented)** The transmitter as claimed in claim 1 wherein the secondary modulation sub-system comprises:

a tone source for supplying a tone that serves as the ONU identifier to a tone modulator to modulate the ONU identifier onto the optical carrier.
3. **(Original)** The transmitter as claimed in claim 2 wherein the tone has a frequency that is well below a data modulation frequency of the primary modulation subsystem.
4. **(Original)** The transmitter as claimed in claim 2 wherein the tone has a frequency that is well above a data modulation frequency of the primary modulation subsystem.

5. **(Original)** The transmitter as claimed in claim 1 wherein the secondary modulation sub-system comprises:
- an ONU identifier source for supplying the ONU identifier to the modulation sub-system to permit the ONU identifier to be modulated onto the optical carrier by the secondary modulation sub-system.
6. **(Original)** The transmitter as claimed in claim 2 further comprising a switch for selectively switching the tone to the tone modulator so that the tone modulator does not impress the ONU identifier onto the optical carrier during a timeslot allocated to the ONU.
7. **(Previously Presented)** The transmitter as claimed in claim 6 further comprising a latching circuit for receiving timeslot information indicating a timeslot allocated to the ONU, and for toggling the switch to switch the tone to the secondary modulation sub-system at respective boundaries of the timeslot.
- 8-24. **Cancelled**
25. **(New)** A transmitter for an optical network unit (ONU) for transmitting data over a return data channel of a passive optical network in accordance with a predefined time-sharing protocol, the transmitter comprising:
- a laser driver for driving a laser of the transmitter to generate an optical carrier;
- a modulation sub-system for modulating data onto the optical carrier generated by the laser; and
- a secondary modulation sub-system for impressing an ONU identifier onto the optical carrier, the ONU identifier serving to identify the ONU to a network monitor that monitors the return data channel, the secondary modulation sub-system comprising a tone source for supplying a tone that serves as the ONU identifier to a tone modulator to modulate the ONU identifier onto the optical carrier; and

a switch for selectively switching the tone to the tone modulator so that the tone modulator does not impress the ONU identifier onto the optical carrier during a timeslot allocated to the ONU.

26. (New) The transmitter as claimed in claim 25 further comprising a latching circuit for receiving timeslot information indicating a timeslot allocated to the ONU, and for toggling the switch to switch the tone to the secondary modulation sub-system at respective boundaries of the timeslot.